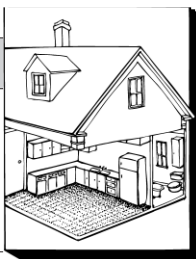


Framing The Bath

by Paul Turpin



Nothing in bathroom remodeling is more frustrating than not being able to secure what you're installing to solid framing. Whether you're hanging a cabinet, roughing in electrical boxes, or just trying to install the towel bars and get on to the next job, you need something solid for your nail or screw to bite into. And it's equally frustrating to have to tear out a stud or reframe an area of the floor because you forgot to allow for the plumbing pipes. With some forethought, you can make life easier for yourself and leave behind a sturdier job if you put framing, backing, and blocking where you'll need them.

Framing For Plumbing

The first thing I do is to lay out the basic framing as if I didn't have to worry about pipes or anything else; then I go back and note every place where my framing would be in the way. It's important to minimize structural damage to the joists that comes from notching and boring to fit pipes and fittings. A little of this is inevitable on most jobs, but when I do have to drill or notch floor framing, I stick to the guidelines illustrated in the chart below. But planning ahead is best; if I give the plumber the room needed for pipes and fittings, I won't have to spend

time repairing weakened framing members.

Tub traps. For bathtub traps, allow at least 4 inches of clear space on each side of the centerline, and 12 inches of space from the wall that the tub is butted up against at the drain end. When you're laying out the floor joists and the studs in the end wall, keep in mind that the centerline of a 32-inch-wide tub with an apron on one side is not 16 inches (half the tub width). Since the apron thickness is only on one side of the tub, the drain-holes in the tub are normally about 14⁵/₈ inches from the back wall.

Shower stall traps. Allow an 8x8-inch clear area for the trap, and leave an unobstructed run for the trap arm. It's nice to keep this dead-center, but it's not absolutely necessary — remember, traps swivel, so there's a little "fudge" available. A shower drain-hub assembly takes up 4 to 5 inches, so I also make sure I keep at least 3 inches clear from the joist on either side.

Lav traps. Ideally, a lav trap arm should not be centered on the fixture centerline. If it is, it will probably interfere with the pop-up drain assembly. Instead, offset the trap 3 to 4 inches on either side.

Shower valves. Most of the time,

shower valves are 8 inches on-center and aligned with the centerline of the drain (which in turn is usually the centerline of the finished stall or tub drain). Standard 8-inch valve-sets will not fit into less than a 10-inch-wide space; be nice to your plumber and give him a centered stud bay (14¹/₂ inches) for tool room. This is most often forgotten when framing for a 32-inch-wide tub/shower combination, and a stud ends up smack in the middle — which the plumber then destroys to install the valves.

Shower pans. Install 2x10s flatwise around the perimeter of the stall to give backing to the sidewalls of the shower pan membrane. At the shower entrance, I aim for a finished difference of 4 inches between the top of the curb and the stall floor. The drain-hub height and shower-pan slope determine where the stall floor hits the curb, but don't let the finished-floor-to-curb height exceed 7 inches.

Oversized tubs. Floor framing under oversized tubs should be based on the tub's weight when full (one gallon of water weighs 8.33 pounds). Bathtubs are designed to be supported from beneath, not to hang from their lips. The most common way to support the tub is to bed it in mortar, which distributes the weight over several joists. Sometimes, though, the tub comes with individual bearing points molded into its underside. In this case, it's important to provide structural blocking or a joist directly below these bearing points. Otherwise, the weight of the tub will be carried by the plywood subfloor, which means the tub may move quite a bit between its empty and full conditions. This, in turn, can cause cracks in the tile and caulking around the tub.

Access hatches and panels. Local codes may require access panels for valve bodies and/or trap assemblies, and hot tubs always require access. I use a minimum 12x12-inch panel, but the bigger the better. If the owner ever really needs someone to get in there for service, it'll probably be a top-dollar service-call plumber working on a Saturday afternoon; the more room they have to work in, the faster they'll get done.

Electrical Considerations

In most bath remodels, there are usually a few electrical matters that require special attention.

Switch boxes. Hanger bars are a good way to position rough boxes, but if the framing member is in the way, you may need to notch. Again, refer to the chart for how much you can notch without destroying the structural integrity of the stud or joist. It's not uncommon to have at least one multi-gang switch box in a bathroom. I prefer to use a block behind them instead of a hanger bar, just to make sure they're rock-solid. I mount

wall switches so the bottom of the box is 48 inches from the finish floor.

Vent fan. Most bathroom vent fans are ceiling-mounted; many will fit in a 14¹/₂-inch joist bay, but you should double-check the rough opening required for each model. Also, check the plans to see if you need to center the fan above a door or window, or put it in the center of the room; if so, you'll need to place a joist bay in the right spot, or head off existing joists to make a box for the motor housing.

Blocking For Accessories

The worst thing to do is to skimp on backing blocks for such things as towel bars and grab bars. To make installing blocks easy, I set small stops on the studs that automatically position the block flush with the face of the studs. I keep some scrap 1x1 pine handy, which I cut into short lengths. I use a little spacer jig to set the pieces of 1x1 1¹/₂ inches from the face of every stud where blocking will go. The 1x1s go in quickly with 8d nails. Then I cut and install all my blocks at once. With the 1x1 stops on each side, I don't have to worry about having to hold the block exactly flush; all I have to do is push it against the stop and nail it.

Towel bars. Towel bar height will vary slightly depending on the location (whether it's over a vanity counter or not, for example). Forty inches is a good nominal height. Make sure the towels will have room to hang: Wash cloths take up 6 to 8 inches; finger towels 8 to 10 inches; hand towels 14 to 18 inches; bath towels 22 to 24 inches; and bath sheets 36 inches.

Toilet-paper holder. I typically place these 8 inches forward of the toilet and 26 inches from the floor. It's a good idea to check with the clients on this item to see if they have any special preferences. The important framing consideration is whether the paper-holder will be surface-mounted or recessed: Surface-mounted will require a conventional backing block; recessed will need a 1x flatwise block at the back of the stud-bay.

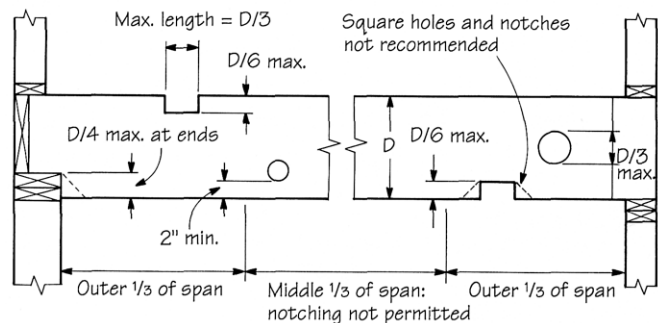
Grab bars. Specs for grab bars will vary somewhat from source to source. The National Kitchen and Bath Association gives heights of 18 to 24 inches for horizontal bars above tubs, and 32 to 36 inches for showers (or combinations). Architectural Graphics Standards shows heights of 36 inches for shower stall bars and 33 inches for grab bars in public toilets.

The most common size grab bars are 1¹/₂ inches in diameter and are mounted 1¹/₂ inches away from the wall. Grab bars *must* be heavy-duty and solidly mounted. Local codes may also apply, especially in meeting accessibility requirements. ■

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Guide for Cutting, Notching, and Boring Joists

| Joist Size | Maximum Hole | Maximum Notch Depth | Maximum End Notch |
|------------|-------------------------------|-------------------------------|-------------------------------|
| 2x4 | None | None | None |
| 2x6 | 1 ¹ / ₂ | 7/8 | 1 ³ / ₈ |
| 2x8 | 2 ³ / ₈ | 1 ¹ / ₄ | 1 ⁷ / ₈ |
| 2x10 | 3 | 1 ¹ / ₂ | 2 ³ / ₈ |
| 2x12 | 3 ³ / ₄ | 1 ⁷ / ₈ | 2 ⁷ / ₈ |



When boring holes in joists for plumbing, never drill a hole larger than one-third the depth of the joist, nor place the hole closer than 2 inches to the joist edge. Notches are not permitted in the middle third of a span, where bending forces are the greatest.